

UTILITY PATENT APPLICATION TRANSMITTAL

Attorney Docket No: 1083.1049/JDH

First Named Inventor or Application Identifier:

Ryuichi MATSUKURA

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(Only for new nonprovisional applications under 37 CFR 1.53(b))

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO: Assistant Commissioner for Patents
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1. ☒ Fee Transmittal Form
2. ☒ Specification, Claims & Abstract [Total Pages: 85]
3. ☒ Drawing(s) (35 USC 113) [Total Sheets: 21]
4. ☒ Oath or Declaration [Total Pages: 1]
 - a. ☒ Newly executed (original or copy)
 - b. ☐ Copy from a prior application (37 CFR 1.63(d)) (for continuation/divisional with Box 17 completed)
 - i. ☐ **DELETION OF INVENTOR(S)**
Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
5. ☐ Incorporation by Reference (usable if Box 4b is checked)
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
6. ☐ Microfiche Computer Program (Appendix)
7. ☐ Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary)
 - a. ☐ Computer Readable Copy
 - b. ☐ Paper Copy (identical to computer copy)
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ACCOMPANYING APPLICATION PARTS

8. ☒ Assignment Papers (cover sheet & document(s))
9. ☐ 37 CFR 3.73(b) Statement (when there is an assignee) ☐ Power of Attorney
10. ☐ English Translation Document (if applicable)
11. ☒ Information Disclosure Statement (IDS)/PTO-1449 ☒ Copies of IDS Citations
12. ☐ Preliminary Amendment
13. ☒ Return Receipt Postcard (MPEP 503) (Should be specifically itemized)
14. ☐ Small Entity Statement(s) ☐ Statement filed in prior application, status still proper and desired.
15. ☒ Certified Copy of Priority Document(s) (if foreign priority is claimed)
16. ☐ Other:

17. If a CONTINUING APPLICATION, check appropriate box and supply the requisite information:☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No: **18. CORRESPONDENCE ADDRESS**STAAS & HALSEY
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**NEW APPLICATION
FEE TRANSMITTAL**

Attorney Docket No. 1083.1049/JDH

Application Number Unassigned

Filing Date February 2, 1998

AMOUNT ENCLOSED \$ 1,814.00 First Named Inventor Ryuichi MATSUKURA

FEE CALCULATION (fees effective 10/01/97)

CLAIMS	(1) FOR	(2) NUMBER FILED	(3) NUMBER EXTRA	(4) RATE	(5) CALCULATIONS
	TOTAL CLAIMS	16 - 20 =	0	X \$ 22.00 =	\$ 0.00
	INDEPENDENT CLAIMS	15 - 3 =	12	X \$ 82.00 =	984.00
	MULTIPLE DEPENDENT CLAIMS (any number; if applicable)			+ \$270.00 =	0.00
	BASIC FILING FEE				+ 790.00
	Total of above Calculations =				\$ 1,774.00
	Surcharge for late filing fee, Statement or Power of Attorney (\$130.00)				+ 0.00
	Reduction by 50% for filing by small entity (37 CFR 1.9, 1.27 & 1.28).				- 0.00
	TOTAL FILING FEE =				\$ 1,774.00
	Surcharge for filing non-English language application (\$130.00; 37 CFR 1.52(d))				+ 0.00
	Recordation of Assignment (\$40.00; 37 CFR 1.21(h)(1))				+ 40.00
	TOTAL FEES DUE =				\$ 1,814.00

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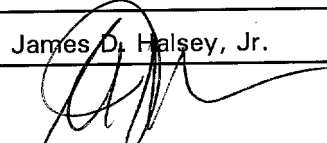
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SUBMITTED BY: STAAS & HALSEY

Typed Name	James D. Halsey, Jr.	Reg. No.	22,729
Signature		Date	February 2, 1998

TITLE OF THE INVENTION

Computer network system and portable computer

BACKGROUND OF THE INVENTION

5 The present invention relates to a mobile computer used
by connecting to a network, or mainly a portable computer,
and more particularly a network system capable of setting for
using the computer system, when such computer is moved to a
place requiring change of network setting, if not having
10 prior knowledge about the network environments in that place,
by presentation of information for operating adequately in
the place from a network server to the moved computer system,
and a portable computer used therein.

15 BRIEF SUMMARY OF THE INVENTION

 Recently, small-sized personal computers featuring
portability known as notebook size personal computers are
widely distributed. In particular, by extending the time
driven by a battery, or reducing in thickness and weight for
20 the ease of carrying as the user moves, portable personal
computers meeting diversified needs of users are developed,
and in actual business scenes, an increasing number of users
always carry portable personal computers, and move and use at
their destination.

25 Places where portable personal computers are likely to

be used except in the office include the destination of visit, transportation means (train, automobile, airplane, etc.), and hotels, and main jobs in such places are writing of documents or reading of e-mails or the like, and no particular problem occurs. The fact is, however, that use of portable personal computer within the same building as the user's office is not promoted. For example, the user usually connecting the portable personal computer to the network on his own desk in the office does not use it mostly when moving within the same building for meeting or the like. The major reason is that setting of network at the destination is not known.

In such circumstances, henceforth, when the user moves within the same building as the own office, it seems that chances of using the portable personal computer by connecting to the network such as Internet and intranet increase. In such cases, connection and disconnection of the network are frequently repeated, and hence easy setting is desired.

Incidentally, when connecting the portable personal computer to the network in other place than usual as in the cases above, the problem is the setting of the network information. As for the IP (Internet Protocol) address, for example, by installing the DHCP (Dynamic Host Configuration Protocol) in the server, the IP address is assigned automatically in the network in which the server exists, and

the portable personal computer can be used immediately by connecting to the network.

In Japanese Patent Application Laid-Open No. 5-101020 (1993) and Japanese Patent Application Laid-Open No. 8-305650 (1996), techniques for assigning automatically the information such as IP address and host name necessary for connecting the computer system to the network are disclosed.

However, all resources connected to the network are not sufficient only when usable. For example, the printer is registered as the resource so that the same printer can be used when the portable personal computer is moved, but in reality it is preferred that the printer closest to the moving destination position of the portable personal computer is usable. That is, the information of such resource as the printer is not usable only by connecting the computer system to a network merely expanding in space, but it must be changed over to a proper resource corresponding to being closer to the moving destination from the usable device, or being same in type or closer in performance as the device used usually.

At a destination to which the user visits for the first time, however, there is no way of knowing how such information is presented which resource in its vicinity, so that it is necessary to ask the people whose usual base of activity is the neighborhood or the administrator of the

network. However, when people having such information are happened to be absent at the site, the device cannot be utilized.

Such problem occurs not only in the printer, but also in the flexible disk drive, CD-ROM drive, modem, scanner and other peripheral devices as the portable personal computer further seeks portability, highly depending on the environments at the destination, and it is required to automate the setting procedure, or at least facilitate it.

As the resource, moreover, not only the hardware, but also the software has the same problems. Usually, the user of the portable personal computer installs the software to be used daily in the own portable personal computer, but the software to be used in a certain place only, for example, the software for searching a database usable in one place only is not usually installed in the individual portable personal computer, but in a meeting room, it is effective to install and use in the individual portable personal computers. However, such software has the same problems as in the hardware mentioned above.

Moreover, the same problem is occurred not only in temporary connection of the above-mentioned portable personal computer to a network, but also in semipermanent connection of a desktop personal computer to a network.

The invention is devised in the light of the above

background, and is intended to utilize the portable personal computer by connecting to a network even when the administrator is absent, not only by assigning the IP address automatically at the moving destination of the portable personal computer, but also obtaining the information of the shared resource on the network from the server at the site.

Further, by comparing with the daily using environments of the user, it is allowed to use the portable personal computer at the moving destination in the environments closer to the usual environments for the user, thereby avoiding extreme change of the convenience of use.

A first aspect of a computer network system of the present invention is characterized in that plural connecting means capable of connecting and disconnecting a computer is provided in a network circuit to which a first computer has been connected, and a second computer is connected to one of the connecting means, and the first computer comprises resource information managing means for managing information relating to resources usable through the network circuit, and resource information processing means for taking out the content of the resource information managing means in response to a request of information relating to usable resources from other computer, and transmitting to the network circuit, the second computer comprises resource setting means for setting the resource according to the

content of the resource information transmitted by the
resource information processing means of the first computer,
and when the second computer is connected to the network
circuit through any one of the plural connecting means, the
5 resource setting means receives the content of the resource
information transmitted by the resource information
processing means of the first computer and sets the resource.

A second aspect of a computer network system of the
present invention is characterized in that plural connecting
10 means capable of connecting and disconnecting a computer is
provided in a network circuit to which a first computer has
been connected, and a second computer is connected to one of
the connecting means, and the first computer comprises
resource information managing means for managing information
15 relating to resources usable through the network circuit,
resource information processing means for taking out the
content of the resource information managing means in
response to a request of information relating to usable
resources from other computer, and transmitting to the
20 network circuit, and resource installation position managing
means for managing the position at which the resource managed
by the resource information managing means exists, the second
computer comprises position noticing means for noticing the
position information indicating the position to the first
25 computer when connected to one of the connecting means,

resource selecting means for selecting an arbitrary resource
out of plural resources, and resource setting means for
setting the resource according to the content of the resource
information selected by the resource selecting means, and
5 when the second computer is connected to the network circuit
through any one of the plural connecting means, the resource
installation position managing means of the first computer
reads out the resource information corresponding to the
position information noticed by the position noticing means
10 from the resource information managing means, and transmits
to the second computer, and the resource setting means of the
second computer sets the resource selected by the resource
selecting means in the resource information received from the
first computer.

15 A third aspect of a computer network system of the
present invention is characterized in that plural connecting
means capable of connecting and disconnecting a computer is
provided in a network circuit to which a first computer has
been connected, and a second computer is connected to one of
20 the connecting means, and the first computer comprises
resource information managing means for managing information
relating to resources usable through the network circuit, and
resource information processing means for taking out the
content of the resource information managing means in
25 response to a request of information relating to usable

resources from other computer, and transmitting to the network circuit, the second computer comprises resource information holding means for holding the resource information relating to the resources that can be managed directly, and comparing means for comparing the content of the resource information holding means and the content of the resource information managing means of the first computer, and detecting a replaceable resource, and when the second computer is connected to the network circuit through any one of the plural connecting means as being disconnected from the resource that can be managed directly, the comparing means compares the content of the resource information managing means transmitted from the resource information processing means and the content of the resource information holding means, and the resource setting means sets a replaceable resource.

A fourth aspect of a computer network system of the present invention is characterized in that plural connecting means capable of connecting and disconnecting a computer is provided in a network circuit to which a computer is connected to one of the connecting means, and the computer comprises resource information managing means for managing plural sets of information relating to the resources usable through the network circuit corresponding to the connecting means, position selecting means for selecting one of the

setting means for setting the resource according to the
information relating to the resource corresponding to the
position selected by the position selecting means, and
comparing means for comparing the updated time of the content
5 of the own resource information managing means and the
updated time of the content of the resource information
managing means of the first computer, and when the second
computer is connected to the network circuit through any one
of the plural connecting means, the resource setting means
10 obtains the content of the resource information managing
means of the first computer, and registers in the resource
information managing means in the case where the comparing
result by the comparing means shows that the updated time of
the content of the own resource information managing means is
15 before the updated time of the content of the resource
information managing means of the first computer.

A sixth aspect of a computer network system of the
present invention is characterized in that plural connecting
means capable of connecting and disconnecting a computer is
20 provided in a network circuit to which a computer is
connected to one of the connecting means, and the computer
comprises resource information managing means for managing
plural sets of information relating to the resources usable
through the network circuit corresponding to the connecting
25 means, position selecting means for selecting one of the

information relating to plural sets of resources managed by the resource information managing means, resource setting means for setting the resource according to the information relating to the resource corresponding to the position selected by the position selecting means, updated resource information transmitting means for transmitting updated resource information to all computers connected to the network circuit when content of the resource information managing means is updated, and resource information updating means for updating the content of the resource information managing means when receiving the updated resource information, and when the computer is connected to the network circuit through any one of the plural connecting means, the resource information updating means updates the content of the resource information managing means in the case where the resource information updating means receives the updated resource information from the updated resource information transmitting means of other computer.

A seventh aspect of a computer network system of the present invention is characterized in that plural connecting means capable of connecting and disconnecting a computer is provided in a network circuit to which plural first computers have been connected, and a second computer is connected to one of the connecting means, and each of the first computers comprises resource information managing means for managing

An eighth aspect of a computer network system of the present invention is characterized in that plural connecting means capable of connecting and disconnecting a computer is provided in a network circuit to which a computer is connected to one of the connecting means, and the computer comprises resource information obtaining means, when other computer is connected to the connecting means of the network circuit, for obtaining the information relating to the usable resources through the network circuit from the other computer, and resource setting means for setting the resource according to the information relating to the resource obtained by the resource information obtaining means, and when the computer is connected to the network circuit through any one of the plural connecting means, the resource setting means sets the resource according to the resource information obtained by the resource information obtaining means from other computer connected to the connecting means of the network circuit.

A ninth aspect of a computer network system of the present invention is characterized in that plural connecting means capable of connecting and disconnecting a computer is provided in a network circuit to which a computer is connected to one of the connecting means, and each of the plural connecting means has position managing means for storing the position information indicating each installation

position, the computer comprises resource information
managing means for managing plural sets of information
relating to the resources usable through the network circuit
corresponding to the connecting means, position selecting
5 means for selecting one of the information relating to plural
sets of resources managed by the resource information
managing means corresponding to the position information
stored in the position managing means of the connecting
means, and resource setting means for setting the resource
10 according to the information relating to the resource
corresponding to the position selected by the position
selecting means, and when the computer is connected to the
network circuit through any one of the plural connecting
means, the resource setting means sets the resource according
15 to the resource information registered in the resource
information managing means corresponding to the position
information stored in the position information managing means
of the connecting means to which the computer is connected.

A tenth aspect of a computer network system of the present invention is characterized in that plural connecting means capable of connecting and disconnecting a computer is provided in a network circuit to which a computer is connected to one of the connecting means, and the connecting means comprises resource information managing means for managing the information relating to the resources usable

through the network circuit near each installation position,
 resource information noticing means for noticing the content
 of the resource information managing means when the computer
 system is connected, and updated resource information
 5 registering means for updating and registering the content of
 the resource information managing means by receiving updated
 resource information from the computer, the computer
 comprises resource information receiving means for receiving
 the resource information managed by the resource information
 10 managing means noticed by the resource information noticing
 means, resource setting means for setting the resource
 according to the resource information received by the
 resource information receiving means, and updated resource
 information noticing means for noticing the updated resource
 15 information to the connecting means in order to update the
 content of the resource information managing means of the
 connecting means, and when the computer is connected to the
 network circuit through any one of the plural connecting
 means, the resource information receiving means receives the
 20 resource information managed by the resource information
 managing means noticed from the resource information noticing
 means, and the resource setting means sets the resource
 according to the resource information received by the
 resource information receiving means.

25 An eleventh aspect of a computer network system of the

present invention is characterized in that, in the tenth aspect, the connecting means further comprises updated resource information transmitting means for sending out updated resource information to the network circuit when the content of the resource information managing means is updated, and updated resource information receiving means for updating the content of the resource information managing means when receiving the updated resource information from the network circuit, when updated resource information is noticed from the updated resource information noticing means to the connecting means, the updated resource information transmitting means sends out the updated resource information to the network circuit, and the updated resource information receiving means, when receiving the updated resource information from the network circuit, updates the content of the resource information managing means according to the received updated resource information.

A twelfth aspect of a computer network system of the present invention is characterized in that at least one connecting means capable of connecting and disconnecting a computer is provided in plural network circuits to each of which resource has been connected, and a computer is connected to one of the connecting means, and the resource has resource information replying means for replying the own resource information when receiving a predetermined message,

the computer comprises resource request message transmitting means for transmitting a message propagating within one network circuit, resource information receiving means for receiving the resource information, and resource setting means for setting the resource according to the content of the resource information received by the resource information receiving means, and when the computer is connected to the network circuit through any one of the plural connecting means, a predetermined message is transmitted from the resource request message transmitting means, the resource information of the resource replied by the resource information replying means for the predetermined message is received by the resource information receiving means, and the resource is set by the resource setting means.

A thirteenth aspect of a computer network system of the present invention is characterized in that at least one connecting means capable of connecting and disconnecting a computer is provided in plural network circuits to each of which a first computer has been connected, and a second computer is connected to one of the connecting means, and each of the first computers comprises resource information managing means for managing information relating to resources usable through only one network circuit to which each is connected, and resource information replying means for replying the resource information which is the content of the

own resource information managing means when receiving the
predetermined message, the computer comprises resource
request message transmitting means for transmitting a message
propagating within one network circuit, resource information
5 receiving means for receiving the resource information, and
resource setting means for setting the resource according to
the content of the resource information received by the
resource information receiving means, and when the computer
is connected to the network circuit through any one of the
10 plural connecting means, a predetermined message is
transmitted from the resource request message transmitting
means, the resource information replied by the resource
information replying means of the resource of the first
computer to this predetermined message is received by the
15 resource information receiving means, and the resource is set
by the resource setting means.

A fourteenth aspect of a computer network system of the
present invention is characterized in that plural connecting
means capable of connecting and disconnecting a computer is
20 provided in a network circuit to which a computer is
connected to one of the connecting means, and each of the
plural connecting means comprises position managing means for
storing the position information showing each installation
position, and radio communication means, the computer
25 comprises resource information managing means for managing

plural sets of information relating to resources usable
through the network circuit corresponding to the connecting
means, radio communication means for connecting with the
radio communication means of the connecting means by radio
5 communication, and selecting one of the information relating
to plural sets of resources managed by the resource
information managing means corresponding to the position
information stored in the position managing means of the
connecting means, and resource setting means for setting the
10 resource according to the information relating to the
resource corresponding to the position selected by the
position selecting means, and when the radio communication
means of the computer is connected to the radio communication
means of any one of the plural connecting means through radio
15 communication, the resource setting means sets the resource
according to the resource information registered in the
resource information managing means corresponding to the
position information stored in the position information
managing means of the connecting means to which the radio
20 communication means of the computer is connected.

A fifteenth aspect of a computer network system of the
present invention is characterized in that plural connecting
means capable of connecting and disconnecting a computer is
provided in a network circuit to which a radio base station
25 capable of communicating with a mobile radio communication

being connected to a computer network to which a server
 computer is connected, and comprises: a resource information
 inquiring unit for inquiring the information relating to the
 resources usable in the network, to the server computer of
 5 the network to which it is connected itself, a resource
 information obtaining unit for obtaining resource information
 noticed from the server computer in response to the inquiry
 from the resource information inquiring unit, and a resource
 setting unit for setting at least one resource required in
 10 the network according to the information relating to the
 resource obtained by the resource information obtaining unit,
 wherein the resource setting unit, when connected to a
 certain network, sets the resource according to the resource
 information intrinsic to the network obtained by the resource
 15 information obtaining unit.

The above and further objects and features of the
 invention will more fully be apparent from the following
 detailed description with accompanying drawings.

20 BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

FIG. 1 is a block diagram for explaining a first
 embodiment of the invention;

FIG. 2 is a schematic diagram showing an example of
 content of a database of a server;

25 FIG. 3 is a schematic diagram showing a display example

of a client computer;

FIG. 4 is a time chart for explaining a second embodiment of the invention;

FIG. 5 is a schematic diagram showing a display example
5 of a client computer;

FIG. 6A and FIG. 6B are schematic diagrams showing a display example of a client computer;

FIG. 7 is a block diagram for explaining a third embodiment of the invention;

FIG. 8 is a schematic diagram showing an example of
10 content of a database of a server;

FIG. 9 is a block diagram showing an example of constitution of a client computer;

FIG. 10 is a schematic diagram showing setting content
15 of resource information of a client;

FIG. 11 is a block diagram for explaining a fourth embodiment of the invention;

FIG. 12 is a block diagram for explaining a fifth embodiment of the invention;

FIG. 13 is a block diagram for explaining a sixth
20 embodiment of the invention;

FIG. 14 is a block diagram for explaining a seventh embodiment of the invention;

FIG. 15 is a block diagram for explaining an eighth
25 embodiment of the invention;

FIG. 16 is a block diagram for explaining a ninth embodiment of the invention;

FIG. 17 is a block diagram for explaining a tenth embodiment of the invention;

5 FIG. 18 is a block diagram for explaining an eleventh embodiment of the invention;

FIG. 19 is a block diagram for explaining a twelfth embodiment of the invention;

10 FIG. 20 is a block diagram for explaining a thirteenth embodiment of the invention; and

FIG. 21 is a block diagram for explaining a fourteenth embodiment of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

15 Referring now to the drawings, embodiments of the invention are described below. FIG. 1 is an explanatory diagram of a first embodiment of a computer network system according to the invention, also showing a constitution of a portable computer of the invention.

20 In FIG. 1, reference numeral 2 denotes a LAN circuit, and plural information consents 3a, 3b, 3c, a server 1, and peripheral devices 5a, 5b, 5c are connected thereto. The information consents 3a, 3b, 3c can be freely connected or disconnected by a portable personal computer (hereinafter
25 called a notebook size PC) 4 as a client computer.

The server 1 comprises a server OS 10 and other various necessary products of software, and also has a software function to communicate with a service processing unit 11 and a resource information database 12. The service processing
5 unit 11 processes various services to the notebook size PC 4 as the client computer. The resource information database 12 stores various data relating to shared resources.

The notebook size PC 4 includes client OS 40 and other various necessary products of software, and also includes a
10 resource setting unit 41 as a software function. The resource setting unit 41 of the notebook size PC 4 executes the processing for inquiring the information relating to the resource to the server 1.

As shown in FIG. 1, three printers 5a, 5b, 5c are
15 connected as peripheral devices to the LAN circuit 2. Accordingly, in the resource information database 12 of the server 1, resource information is registered as shown in the schematic diagram in FIG. 2. More specifically, in the resource information database 12, types of peripheral devices
20 (all printers), names on the network (monochromatic printer No. 1, color printer No. 1, monochromatic printer No. 2), their features (600 dpi, color, 600 dpi), places of installation (meeting room, south of office, north of office), usable conditions, that is, OS or hardware
25 conditions (Windows 95, All, Windows 95/3.1), and access

conditions (none, none, registered only) are registered.

Further in the server 1, for example, the software for searching a database intrinsic to the network to which the server 1 is connected (hereafter called search software) is installed, and this search software is also registered as resource information as shown in FIG. 2.

Hereinafter is explained a specific case of the user using the notebook size PC 4 by connecting to the LAN circuit 2. First, the user connects his notebook size PC 4 to one of the information consents 3a, 3b, 3c, for example, 3a, and then the resource setting unit 41 of the notebook size PC 4 broadcasts the resource request message to the LAN circuit 2, thereby waiting for a reply. When the service processing unit 11 of the server 1 receives the resource request message broadcasted from the notebook size PC 4, the resource information database 12 is searched, and the resource usable by the notebook size PC 4 is extracted and a list (resource information list) is generated, and this resource information list is transmitted to the LAN circuit 2, being destination to the notebook size PC 4 to which the service processing unit 11 has sent the resource request message.

In the resource information database 12 of the content as shown in FIG. 2, for example, if the user of the notebook size PC 4 connected to the information consent 3a is a user not registered in the network, the service processing unit 11

extracts the resource information relating to the
"monochromatic printer No. 1" and "color printer No. 1",
other than the "monochromatic printer No. 2" in which
"registered person only" is specified as the access
5 condition, and the "search software", and generates a
resource information list.

In this way, when the resource information list is
transmitted from the server 1 to the LAN circuit 2, it is
received by the notebook size PC 4, and is presented in a
10 manner understandable by the user, specifically, shown on a
display and like. FIG. 3 is a schematic diagram showing a
display example in the notebook size PC 4. In this example,
as the usable resources, "monochromatic printer No. 1",
"color printer No. 1" and "search SW (software)" are
15 presented, and it is shown that the features of the two
printers are 600 dpi and color, respectively, and the places
of installation are known to be the meeting room, south of
office, and the meeting room, respectively. The user refers
to the resource information list presented as in FIG. 3 and
20 selects the resource, and when, for example, "monochromatic
printer No. 1" is selected, the resource setting unit 41 sets
the client OS 40 so that the selected resource (monochromatic
printer No. 1) may be usable in the notebook size PC 4.

When selecting the hardware as the resource, it is
25 possible to use only by setting the resource information as

described above, but concerning the software as the resource,
it is necessary to download this software into the notebook
size PC 4. Therefore, when the user selects the "search
software", the resource setting unit 41 of the notebook size
5 PC 4 requests downloading of the selected resource (search
software) to the server 1.

In response, the server 1 transmits the software
requested by the service processing unit 11, in this case,
the program file of the search software to the notebook size
10 PC 4. In the notebook size PC 4, receiving the program file
transmitted from the server 1, it is accepted by the resource
setting unit 41 and registered in the program menu. Thus, in
the notebook size PC 4, it is possible to start the search
software registered in the program menu, and the user can use
15 the search software on the notebook size PC 4 in the meeting
room.

A second embodiment of the invention is described below.
In the first embodiment, of the resource information
registered in the resource information database 12 of the
20 server 1, the resource information of all peripheral devices
that can be connected to the notebook size PC 4 is
transmitted to the notebook size PC 4, but it is also
possible to present the place of controlling the resource by
the server 1 from the server 1 itself, and designate the
25 place from the notebook size PC 4.

That is, as shown in the time chart in FIG. 4, first the notebook size PC 4 transmits a resource request message without designation of place to the server 1 (step S11). In response, the server 1 notices the information of the place for managing the resource by the server 1 itself to the notebook size PC 4 as the managing place list (step S12). A menu screen of managing places as schematically shown in FIG. 5 is presented in the notebook size PC 4.

In the example shown in FIG. 5, the server 1 manages three areas, that is, north portion FN and south portion FS of office, and meeting room FM, and it shows, in other words, that the LAN circuit 2 is installed in these three areas. As shown in FIG. 2, the monochromatic printer No. 2 is installed in the north of office FN, a color printer No. 1 in the south of office FS, and monochromatic printer No. 1 in the meeting room FM, and it further shows that the search software is usable in the meeting room FM.

When the user of the notebook size PC 4 designates any area, for example, north of office on the menu as shown in FIG. 5, a resource request message with designation of place is transmitted from the notebook size PC 4 to the server 1 (step S13). Receiving this resource request message with designation of place, the server 1 extracts the resource information installed in the designated place, and transmits the list to the notebook size PC 4 (step S14). As a result,

such server 1, the resource information as shown in the schematic diagram in FIG. 8 is registered. More specifically, same as the resource information database 12 in the first embodiment schematically shown in FIG. 2, the resource information of three printers 5a, 5b, 5c is registered, and also the resource information relating to the peripheral devices such as FDD 111, CDD 112, MOD 113 connected to the server 1 is registered.

That is, the types of these peripheral devices (FD, CD-ROM, MO), names on the network (all "server 1"), their features (3.5 inch, 10x speed, 640 MB), places of installation (all "south of office"), usable conditions, that is, OS or hardware conditions (all "Windows 95/3.1"), and access conditions (all "none") are registered.

On the other hand, FIG. 9 is a schematic diagram showing an example of constitution in the case of the user using the notebook size PC 4 on his own desk. When the user uses the notebook size PC 4 on his own desk, generally, it is connected to a docking station 400 by a bus 410. The docking station 400 comprises FDD 401, CDD 402, MOD 403, and LAN adapter 404. The LAN adapter 404 is connected to a LAN circuit 411 different from the LAN circuit 2.

Therefore, in the ordinary state of the user using the notebook size PC 4 on his own desk, the notebook size PC 4 is used as being connected to the docking station 400 which is

connected to the LAN circuit 411. In this state, the notebook size PC 4 is accessible to the FDD 401, CDD 402, MOD 403, and is also accessible to the LAN circuit 411 through the LAN adapter 404. However, when the user uses the notebook size PC 4 in other place than his own desk, the notebook size PC 4 is separated from the docking station 400 and moved. In this case, therefore, the FDD 401, CDD 402, MOD 403, etc. cannot be used.

FIG. 10 is a schematic diagram showing the content of the resource information set in the client OS 40 of the notebook size PC 4. The FDD 401 of the docking station 400 is connected to drive A, the internal hard disk to drive C, the CDD 402 of the docking station 400 to drive D, the MOD 403 of the docking station 400 to drive E, and the network drive 1 to drive F, respectively, and the others than the internal hard disk connected to drive C can be replaced. Replacing means that equivalent resource devices, if present, can be used. Moreover, a printer that cannot be replaced is connected to a port LPT No. 1, a replaceable 600 dpi printer (monochromatic) to a printer port No. 1, and a replaceable color printer to a printer port No. 2.

Therefore, when the notebook size PC 4 is separated from the docking station 400 and moved to other place, it means that equivalent devices existing at the destination can be used instead of the FDD 401, CDD 402, MOD 403, etc. For

example, when the notebook size PC 4 is separated from the docking station 400, the FDD 401 cannot be used, but if there is a sharable FDD, it can be used through the network (LAN circuit 2). Accordingly, when the resource information list from the service processing unit 11 of the server 1 is received in the notebook size PC 4, if a device equivalent to the resource registered as being replaceable in the client OS 40 of the notebook size PC 4 is present in the resource information list, the resource setting unit 41 replaces with it and sets.

By such processing by the resource setting unit 41, when the notebook size PC 4 is moved from the user's desk to other place and is connected to the LAN circuit 2, by the same setting as in usual resource setting, the FDD 111, CDD 112, MOD 113 connected to the server 1, and the printers 5a, 5b, 5c, etc. connected to the LAN circuit 2 can be used.

When the user selects the software as the resource, same as in the case of the first embodiment, the resource setting unit 41 of the notebook size PC 4 sends a download request of the software, and in the server 1, the service processing unit 11 transmits the program of the software to the notebook size PC 4. In the notebook size PC 4, the resource setting unit 41 receives the transmitted program, and downloads, and registers it in the program menu. As a result, the user can use the software on the notebook size PC 4.

A fourth embodiment of the invention is described while referring to a block diagram in FIG. 11.

In FIG. 11, reference numeral 2 denotes a LAN circuit, and plural information consents 3a, 3b, 3c are connected thereto. The notebook size PC 4 can freely connect to or disconnect from the information consents 3a, 3b, 3c.

The notebook size PC 4 includes a resource setting unit 41, a resource information database 42, and a destination selecting unit 43. The resource setting unit 41 of the notebook size PC 4 executes processing for actually setting the resource in the notebook size PC 4. In the resource information database 42, a list of resource information corresponding to several preset destinations is registered. The destination selecting unit 43 selects the actually moved place of the user, or the notebook size PC 4, out of the destinations registered in the resource information database 42.

When the user uses the notebook size PC 4 by connecting to the LAN circuit 2, the operation is as follows. First, the user connects the notebook size PC 4 to one of the information consents 3a, 3b, 3c, for example, 3a, then the destination selecting unit 43 displays several destinations registered in the resource information database 42. When the user selects the actual place of move from the displayed destination candidates, the resource setting unit 41 of the

notebook size PC 4 reads out and displays a list of resource information registered corresponding to the place from the resource information database 42.

When the list of resource information is displayed in this way, the user sets the resource by referring to the displayed list.

A fifth embodiment of the invention is described while referring to a block diagram in FIG. 12.

In FIG. 12, reference numeral 2 denotes a LAN circuit, and plural information consents 3a, 3b, 3c, and a server 1 are connected thereto. The notebook size PC 4 as the client computer, can freely connect to or disconnect from the information consents 3a, 3b, 3c.

The server 1 includes a service processing unit 11 and a resource information database 12. The service processing unit 11 processes various services to the notebook size PC 4 which is the client computer. The resource information database 12 stores various data relating to shared resources.

The notebook size PC 4 includes a resource setting unit 41, a resource information database 42, a destination selecting unit 43, and a data managing unit 44. The resource setting unit 41 executes processing for actually setting the resource in the notebook size PC 4. In the resource information database 42, a list of resource information corresponding to several preset destinations is registered.

The destination selecting unit 43 selects the actually moved place of the user, or, in other words, the notebook size PC 4, out of the destinations registered in the resource information database 42. The data managing unit 44 receives
5 the updated date of the content of the resource information database 12 transmitted from the service processing unit 11 of the server 1, and when it is later than the updated date of the resource information database 42 of the notebook size PC 4, the content of the resource information data base 12 of
10 the server 1 is downloaded into the resource information database 42.

When the user uses the notebook size PC 4 by connecting to the LAN circuit 2, the operation is as follows. First, the user connects the notebook size PC 4 to one of the
15 information consents 3a, 3b, 3c, for example, 3a, then the resource setting unit 41 of the notebook size PC 4 broadcasts the resource request message to the LAN circuit 2, and waits for response. When the service processing unit 11 of the server 1 receives the message broadcasted from the notebook
20 size PC 4, the resource information database 12 is searched, and a list of resources usable by the notebook size PC 4 is generated, and this list is transmitted to the LAN circuit 2, being a destination to the notebook size PC 4 to which the message has been transmitted from the service processing unit
25 11.

When the list is thus transmitted from the server 1 to the LAN circuit 2, it is received by the data managing unit 44 of the notebook size PC 4, and the updated date is compared with the updated data of the resource information database 42 of the notebook size PC 4. As a result of comparison by the data managing unit 44, only when the updated date of the resource information database 12 of the server 1 is later, the content is received in the resource setting unit 41, and downloaded into the resource information database 42.

Then, the destination selecting unit 43 displays several destinations registered preliminarily in the resource information database 42. When the user selects the actual place of move out of the displayed destination candidates, the resource setting unit 41 of the notebook size PC 4 reads out and displays a list of resource information registered corresponding to the place from the resource information database 42.

When the list of resource information is displayed in
20 this way, the user sets the resource by referring to the
displayed list.

Incidentally, when the notebook size PC 4 is connected to the same information consent 3a (or 3b, 3c) continuously more than a predetermined time, the updated date of the resource information database 12 of the server 1 and the

updated date of the resource information database 42 of the notebook size PC 4 may be automatically compared in a predetermined period by the data managing unit 44.

When the user selects the software as the resource, same
5 as in the case of the first embodiment, the resource setting unit 41 of the notebook size PC 4 sends a download request of the software, and in the server 1, the service processing unit 11 transmits the program of the software to the notebook size PC 4. In the notebook size PC 4, the resource setting
10 unit 41 receives the transmitted program, and downloads, and registers it in the program menu. As a result, the user can use the software on the notebook size PC 4.

A sixth embodiment of the invention is described while referring to a block diagram in FIG. 13.

15 In FIG. 13, reference numeral 2 denotes a LAN circuit, and plural information consents 3a, 3b, 3c are connected thereto. The notebook size PC 4 can freely connect to or disconnect from the information consents 3a, 3b, 3c.

The notebook size PC 4 includes a resource setting unit
20 41, a resource information database 42, a destination selecting unit 43, a message processing unit 45, and a database updating unit 46. The resource setting unit 41 executes processing for actually setting the resource in the notebook size PC 4. In the resource information database 42,
25 a list of resource information corresponding to several

preset destinations is registered. The destination selecting unit 43 selects the actually moved place of the user, or, in other words, the notebook size PC 4, out of the destinations registered in the resource information database 42. The message processing unit 45 receives an updated message of the resource information database 42. The database updating unit 46 updates the resource information database 42 automatically from the received message.

When the user uses the notebook size PC 4 by connecting to the LAN circuit 2, the operation is as follows. First, the user connects the notebook size PC 4 to one of the information consents 3a, 3b, 3c, for example, 3a, then the destination selecting unit 43 displays several destinations registered preliminarily in the resource information database 42. When the user selects the actual place of move out of the displayed destination candidates, the resource setting unit 41 of the notebook size PC 4 reads out and displays a list of resource information registered corresponding to the place from the resource information database 42.

When the list of resource information is displayed in this way, the user sets the resource by referring to the displayed list.

Incidentally, when the user of such network changes the resource information, from a personal computer of the user connected to the LAN circuit 2, for example, by a storage

type message such as e-mail, the changed resource information is transmitted to a personal computer having the same function as the notebook size PC 4 through the LAN circuit 2. This message is received in the message processing unit 45 of the notebook size PC 4, and according to its content the database updating unit 46 updates the content of the resource information database 42. Therefore, in this sixth embodiment, not only the administrator of the network, but also the general user can update the resource.

A seventh embodiment of the invention is described while referring to a block diagram in FIG. 14.

In FIG. 14, reference numeral 2 denotes a LAN circuit, and plural information consents 3a, 3b, 3c, and servers 1-1 and 1-2 are connected thereto. The notebook size PC 4 as the client computer can freely connect to or disconnect from the information consents 3a, 3b, 3c.

The server 1-1 (or 1-2) includes a service processing unit 11-1 (or 11-2) and a resource information database 12-1 (or 12-2). The service processing unit 11-1 (or 11-2) processes various services to the notebook size PC 4 which is the client computer. The resource information database 12-1 (or 12-2) stores various data relating to shared resources.

In the seventh embodiment, two servers 1-1 and 1-2 as mentioned above are connected to the LAN circuit 2, but actually the two servers 1-1 and 1-2 are installed in

different places, for example, different floors or different rooms in a same building. In the example shown in FIG. 14, the server 1-1 is installed on a first floor F1 of a certain building, and the server 1-2 on a second floor F2 of the same building. The information consent 3c is installed on the
5 first floor F1, and others 3a, 3b on the second floor F2.

In the server 1-1, a list of resource information of various devices installed on the first floor F1 on which this server 1-1 is installed is registered, and in the server 1-2,
10 similarly, a list of resource information of various devices installed on the second floor F2 on which this server 1-2 is installed is registered.

The notebook size PC 4 includes a resource setting unit 41, a destination selecting unit 43, and a resource
15 information registering unit 47. The resource setting unit 41 of the notebook size PC 4 executes processing for inquiring information relating to the resource to the server 1-1 or 1-2. The destination selecting unit 43 selects the actually moved place of the user, or, in other words, the
20 notebook size PC 4. The resource information registering unit 47 connects to the server 1-1 or 1-2 corresponding to the place selected by the destination selecting unit 43, and downloads or sets the resource information registered in the resource information database 12-1 or 12-2 through the
25 service processing unit 11-1 or 11-2.

When the user uses the notebook size PC 4 by connecting to the LAN circuit 2, the operation is as follows. First, the user connects the notebook size PC 4 to one of the information consents 3a, 3b, 3c, then the destination selecting unit 43 selects the destination, and the resource information registering unit 47 transmits the message to either server 1-1 or 1-2, for example, server 1-1 corresponding to the selected place, and the service processing unit 11 downloads and sets the list of resource information registered in the resource information database 12-1 in the OS 11-1 (operating system).

Therefore, as shown in FIG. 14, when the notebook size PC 4 is connected to the information consent 3a installed on the second floor F2, the user has only to select the second floor F2 out of the places displayed by the destination selecting unit 43. As a result, the resource information registering unit 47 transmits the message to the server 1-2 installed on the second floor F2, and downloads the list of information relating to the resources installed on the second floor F2 from the resource information database 12, and registers and sets in the OS.

Or, when the notebook size PC 4 is connected to the information consent 3c installed on the first floor F1, the user has only to select the first floor F1 out of the places displayed by the destination selecting unit 43. As a result,

processes various services to the notebook size PC 4. The resource information obtaining unit 13-1 (or 13-2) obtains the resource setting information set in the OS (operating system) 10-1 (or 10-2) of the PC 5-1 (or 5-2).

5 Herein, the two PCs 5-1, 5-2 are installed in different places, for example, different floors or different rooms in a same building. In the example shown in FIG. 15, the PC 5-1 is installed on a first floor F1 of a certain building, and the PC 5-2 on a second floor F2 of the same building. The
10 information consent 3c is installed on the first floor F1, and others 3a, 3b on the second floor F2.

 In the PC 5-1, a list of resource information of various devices installed on the first floor F1 on which this PC 5-1 is installed is registered, and in the PC 5-2, similarly, a
15 list of resource information of various devices installed on the second floor F2 on which this PC 5-2 is installed is registered, respectively in the individual OS 10-1, 10-2.

 The notebook size PC 4 includes a resource setting unit 41, a destination selecting unit 43, and a resource
20 information registering unit 47. The resource setting unit 41 executes processing for inquiring information relating to the resource to the PC 5-1 or 5-2. The destination selecting unit 43 selects the actually moved place of the user, or the notebook size PC 4. The resource information registering
25 unit 47 connects to the PC 5-1 or 5-2 corresponding to the

destination selecting unit 43 selects the first floor F1, and
the resource information registering unit 47 transmits the
message to the PC 5-1 installed on the first floor F1, and
downloads the list of information relating to the resources
5 installed on the first floor F1 from the OS 10-1 of the PC
5-1, and sets in the own OS 40.

Incidentally, when the user selects the software as the
resource, same as in the case of the first embodiment, the
resource setting unit 41 of the notebook size PC 4 sends a
10 download request of the software, and in the PC 5-1 or 5-2,
the service processing unit 11 transmits the program of the
software to the notebook size PC 4. In the notebook size PC
4, the resource setting unit 41 receives the transmitted
program, and downloads, and registers it in the program menu.
15 As a result, the user can use the software on the notebook
size PC 4.

A ninth embodiment of the invention is described while
referring to a block diagram in FIG. 16.

In FIG. 16, reference numeral 2 denotes a LAN circuit,
20 and plural information consents 3a, 3b, 3c are connected
thereto. The notebook size PC 4 can freely connect to or
disconnect from the information consents 3a, 3b, 3c.

The information consents 3a, 3b, 3c are provided with
network position managing units 31a, 31b, 31c, respectively.

25 In each one of these network position managing units 31a,

31b, 31c, a unique identifier is stored, and when the notebook size PC 4 is connected to one of the information consents 3a, 3b, 3c, the identifier stored in the corresponding network position managing unit 31a, 31b, or 31c is read into the notebook size PC 4.

The notebook size PC 4 includes a resource setting unit 41, a resource information database 42, and a destination selecting unit 43. The resource setting unit 41 executes processing for actually setting the resource to the notebook size PC 4. In the resource information database 42, a list of resource information corresponding to several preset destinations is registered. The destination selecting unit 43 reads out the identifier from the network position managing unit 31a, 31b, or 31c when the notebook size PC 4 is connected to one of the information consents 3a, 3b, 3c, and selects the corresponding destination out of the destinations registered in the resource information database 42.

When the user uses the notebook size PC 4 by connecting to the LAN circuit 2, the operation is as follows. First, the user connects the notebook size PC 4 to one of the information consents 3a, 3b, 3c, for example, 3a, then the destination selecting unit 43 reads out the identifier from the network position managing unit 31a of the information consent 3a, and selects the corresponding destination out of several destinations preliminarily registered in the resource

information usable near the information consent 3a in which
it is provided is registered. The updated resource
information registering unit 33a processes updated
registration of the resource information registered in the
5 resource information managing unit 32a. The resource
information noticing unit 34a obtains the resource
information registered in the resource information managing
unit 32a when it is updated by the updated resource
information registering unit 33a, and notices it to the
10 notebook size PC 4 connected to the information consent 3a in
which it is provided. The updated resource information
receiving unit 35a receives the updated resource information
flowing in the LAN circuit 2, so that the updated resource
information registering unit 33a updates the content of the
15 resource information managing unit 32a. The updated resource
information transfer unit 37a sends out the differential
information to the LAN circuit 2 when the content of the
resource information managing unit 32a is updated.

The notebook size PC 4 includes a resource setting unit
20 41, a resource information receiving unit 48, and an updated
resource information noticing unit 49. The resource setting
unit 41 executes processing for actually setting the resource
to the notebook size PC 4. The resource information
receiving unit 48 receives the resource information from the
25 resource information noticing unit 34a when the notebook size

information near the information consent 3a is automatically obtained in the notebook size PC 4 from the resource information managing unit 32a, and registered in its OS, so that the user has nothing to do thereafter.

5 Incidentally, the resource information registered in the resource information managing unit 32a of the information consents 3a, 3b, 3c is updated when the notebook size PC 4 having the updated resource information noticing unit 49 is connected to this information consent 3a, and new resource
10 information, that is, updated resource information is noticed from the updated resource information noticing unit 49 to each resource information managing unit 32a through the updated resource information registering unit 33a of the information consent 3a. This is same in the other
15 information consents 3b, 3c. In this case, the difference between the updated resource information and the resource information stored in the resource information managing unit 32a so far is sent out to the LAN circuit 2 from, for example, the updated resource information transfer unit 37a
20 of the information consent 3a. In the other information consents 3b, 3c, the difference of the resource information sent out to the LAN circuit 2 in this manner is received in each updated resource information receiving unit from the LAN circuit 2, and the content of each resource information
25 managing unit is updated.

An eleventh embodiment of the invention is described while referring to a block diagram in FIG. 18.

In FIG. 18, reference numerals 2-1 and 2-2 denote independent LAN circuits, which are connected by a LAN
5 connecting device 20. When communicating from one LAN circuit 2-1 (or 2-2) to other LAN circuit 2-2 (or 2-1) across the LAN connecting device 20, it is necessary to designate the LAN address. Information consents 3a, 3b are connected to the LAN circuit 2-1, and information consent 3c to the LAN
10 circuit 2-2, and the notebook size PC 4 can freely connect to or disconnect from the information consents 3a, 3b, 3c.

In the eleventh embodiment, thus, the two LAN circuits 2-1, 2-2 are connected through the LAN connecting device 20, but actually the both LAN circuits 2-1, 2-2 are installed in
15 different places, for example, on different floors or in different rooms of a same building. In the example shown in FIG. 18, the LAN circuit 2-1 is installed on a first floor F1 of a certain building, and the LAN circuit 2-2 is on a second floor F2 of the same building. The information consent 3c is
20 connected to the LAN circuit 2-1 of the first floor F1, and the others 3a, 3b to the LAN circuit 2-2 on the second floor F2.

Further, in the LAN circuit 2-1, that is, on the first floor F1, a peripheral device 6-1 such as printer is
25 connected, and in the LAN circuit 2-2, that is, on the second

floor F2, a peripheral device 6-2 such as printer is connected.

The notebook size PC 4 includes a resource setting unit 41, a resource information receiving unit 48, and a resource request message transmitting unit 50. The resource setting unit 41 executes processing for actually setting the resource to the notebook size PC 4. The resource information receiving unit 48 receives the reply message of the message transmitted from the resource request message transmitting unit 50 to the LAN circuit 2-1 (or 2-2). The resource request message transmitting unit 50 transmits the message only to the device connected to the same LAN circuit 2-1 (or 2-2) as in the notebook size PC 4 in order to search the resource.

The peripheral devices 6-1, 6-2 are provided with registered resource information replying units 61-1, 61-2, aside from the intrinsic functions. The registered resource information replying units 61-1, 61-2 transmit the resource information for registering themselves in the notebook size PC 4 when receiving the message broadcasted from the resource setting unit 41 of the notebook size PC 4.

When the user uses the notebook size PC 4 by connecting to the LAN circuit 2-1 or 2-2, the operation is as follows. First, the user connects the notebook size PC 4 to one of the information consents 3a, 3b, 3c, for example, the information

consents 3a, 3b, 3c, the resource information in the device connected to the LAN circuit 2-1 (or 2-2) to which the information consent 3a is connected, in other words, only in the place where the LAN circuit 2-1 (or 2-2) is installed is automatically obtained in the notebook size PC 4 and registered in its OS, so that the user has nothing to do thereafter.

A twelfth embodiment of the invention is described while referring to a block diagram in FIG. 19.

In FIG. 19, reference numerals 2-1 and 2-2 denote independent LAN circuits, which are connected by a LAN connecting device 20. When communicating from one LAN circuit 2-1 (or 2-2) to other LAN circuit 2-2 (or 2-1) across the LAN connecting device 20, it is necessary to designate the LAN address. Information consents 3a, 3b are connected to the LAN circuit 2-1, and information consent 3c to the LAN circuit 2-2, and the notebook size PC 4 can freely connect to or disconnect from the information consents 3a, 3b, 3c.

In the twelfth embodiment, thus, the two LAN circuits 2-1, 2-2 are connected through the LAN connecting device 20, but actually the both LAN circuits 2-1, 2-2 are installed in different places, for example, on different floors or in different rooms of a same building. In the example shown in FIG. 19, the LAN circuit 2-1 is installed on a first floor F1 of a certain building, and the LAN circuit 2-2 is on a second

floor F2 of the same building. The information consent 3c is connected to the LAN circuit 2-1 of the first floor F1, and the others 3a, 3b to the LAN circuit 2-2 on the second floor F2.

5 Further, a server 1-1 is connected to the LAN circuit 2-1, and a server 1-2 to the LAN circuit 2-2. In other words, the server 1-2 is installed on the first floor F1, and the LAN circuit 2-1 on the second floor F2.

10 The notebook size PC 4 includes a resource setting unit 41, a resource information receiving unit 48, and a resource request message transmitting unit 50. The resource setting unit 41 executes processing for actually setting the resource to the notebook size PC 4. The resource information receiving unit 48 receives the reply message of the message
15 transmitted from the resource request message transmitting unit 50 to the LAN circuit 2-1 (or 2-2). The resource request message transmitting unit 50 transmits the message only to the device connected to the same LAN circuit 2-1 (or 2-2) as in the notebook size PC 4 in order to search the
20 resource.

The servers 1-1, 1-2 are provided with registered resource information replying units 61-1, 61-2, and resource information managing units 62-1, 62-2. The registered resource information replying units 61-1, 61-2 transmit the
25 resource information for registering the resource information

in the notebook size PC 4 when receiving the message
broadcasted from the resource setting unit 41 of the notebook
size PC 4. The resource information managing units 62-1,
62-2 are managing the resource information usable in the
5 periphery of the installation of their servers 1-1, 1-2, that
is, the place of installation of the LAN circuit 2-1 or 2-2
to which the server 1-1 or 1-2 is connected.

When the user uses the notebook size PC 4 by connecting
to the LAN circuit 2-1 or 2-2, the operation is as follows.

10 First, the user connects the notebook size PC 4 to one of the
information consents 3a, 3b, 3c, for example, the information
consent 3a connected to the LAN circuit 2-1 on the first
floor, then the resource request message is broadcasted from
the resource request message transmitting unit 50 of the
15 notebook size PC 4 only to the range within LAN circuit 2-1
to which this notebook size PC 4 is connected, in other
words, in a range not exceeding the LAN connecting device 20.

The resource request message broadcasted from the
resource request message transmitting unit 50 of the notebook
20 size PC 4 to the LAN circuit 2-1 through the information
consent 3a is received in the registered resource information
replying unit 61-1 of the server 1-1 connected to the LAN
circuit 2-1. The registered resource information replying
unit 61-1 of the server 1-1, when receiving the resource
25 request message broadcasted from the notebook size PC 4,

replies a list of resource information managed by itself.

Thus, the list of resource information replied from the registered resource information replying unit 61-1 of the server 1-1 is received in the resource information receiving unit 48 of the notebook size PC 4, and the resource setting unit 41 registers and sets in the OS.

Therefore, in the twelfth embodiment, once the user connects the notebook size PC 4 to any one of the information consents 3a, 3b, 3c, the resource information managed by the server 1-1 (or 1-2) connected to the LAN circuit 2-1 (or 2-2) to which the information consent 3a is connected, in other words, the resource information only in the place where the LAN circuit 2-1 (or 2-2) is installed is automatically obtained in the notebook size PC 4 and registered in its OS, so that the user has nothing to do thereafter.

In the preceding eleventh embodiment, the resource information of only the device having the registered resource information replying units (61-1, 61-2) is obtained, and if the device not having the registered resource information replying units (61-1, 61-2) is connected to the LAN circuit 2-1 (or 2-2), the resource information of that device was not obtained. By contrast, in the twelfth embodiment, by registering the resource information of all necessary devices in the resource information managing units 62-1, 62-2 of the servers 1-1, 1-2, the resource information of all devices in

the periphery of the LAN circuit 2-1 (or 2-2) to which the notebook size PC 4 is connected can be obtained.

Instead of the servers 1-1, 1-2, other PC may be connected to other information consent 3b of the LAN circuit 2-1 (2-2) to which the notebook size PC 4 is connected, and the resource information of that PC can be obtained in the notebook size PC 4.

Incidentally, when the user selects the software as the resource, same as in the case of the first embodiment, the resource setting unit 41 of the notebook size PC 4 sends a download request of the software, and in the server 1-1 or 1-2, the registered resource information replying unit 61-1 or 61-2 transmits the program of the software to the notebook size PC 4. In the notebook size PC 4, the resource setting unit 41 receives the transmitted program, and downloads, and registers it in the program menu. As a result, the user can use the software on the notebook size PC 4.

A thirteenth embodiment of the invention is described while referring to a block diagram in FIG. 20.

In FIG. 20, reference numeral 2 denotes a LAN circuit, and plural information consents 3a, 3b, 3c are connected thereto. The notebook size PC 4 can freely connect to or disconnect from the information consents 3a, 3b, 3c.

The information consents 3a, 3b, 3c are identical in constitution, and the information consent 3a is explained

(infrared ray) communication is done according to a standard such as the IrDA.

When the user uses the notebook size PC 4 by connecting to the LAN circuit 2, the operation is as follows. In this
5 thirteenth embodiment, however, the notebook size PC 4 and the LAN circuit 2 are not connected physically, but are connected by wireless communication as stated above.

First, the user puts the notebook size PC 4 near one of the information consents 3a, 3b, 3c, for example, 3a, then
10 the wireless communication unit 51 of the notebook size PC 4 reads out the identifier from the network position managing unit 31a of the information consent 3a by wireless communication, and selects the corresponding destination out of the several destinations registered preliminarily in the
15 resource information database 42. Then the resource setting unit 41 of the notebook size PC 4 reads out a list of resource information registered corresponding to the place from the resource information database 42, and registers in the OS. This is the same in the other information consents
20 3b, 3c.

Therefore, in the thirteenth embodiment, the user has only to put the notebook size PC 4 at distance and position possible for wireless communication, without physically connected to any one of the information consents 3a, 3b, 3c,
25 then a list of resource information is automatically

registered in the OS, so that the user has nothing to do thereafter.

A fourteenth embodiment of the invention is described while referring to a block diagram in FIG. 21.

5 In FIG. 21, reference numeral 2 denotes a LAN circuit, and plural information consents 3a, 3b, 3c are connected thereto. The notebook size PC 4 can freely connect to or disconnect from the information consents 3a, 3b, 3c. To the LAN circuit 2, moreover, a radio base station 8 as described
10 below is connected through a communication circuit 83, for example, a telephone circuit.

The information consents 3a, 3b, 3c are respectively provided with network position managing units 31a, 31b, 31c, and radio communication units 36a, 36b, 36c. A unique
15 identifier is stored in each one of the network position managing units 31a, 31b, 31c, and when the notebook size PC 4 is connected to one of the information consents 3a, 3b, 3c, the identifier stored in the network position managing unit 31a, 31b, or 31c is read into the notebook size PC 4. The
20 wireless communication units 36a, 36b, 36c are used for wireless communication with the notebook size PC 4.

The notebook size PC 4 includes a resource setting unit 41, a resource information database 42, and a destination selecting unit 43. The resource setting unit 41 executes
25 processing for actually setting the resource in the notebook

size PC 4. In the resource information database 42, a list of resource information corresponding to several preset destinations is registered. The destination selecting unit 43 selects the destination according to the location information noticed from the radio base station 8 out of plural destination candidates registered in the resource information database 42.

Reference numeral 7 is a portable radio equipment, more specifically a device capable of locating the position in the radio base station 8, for example, a portable terminal of PHS (Personal Handy-phone System), and in this example, it is supposed that the radio base station 8 is installed indoors, and plural portable radio equipments 7 are used as extension telephones.

The radio base station 8 is a base station of such system as mentioned above, and is connected to multiple other radio base stations through a network circuit 80. This radio base station 8 includes a base station position managing unit 81 and a user corresponding unit 82. The base station position managing unit 81 manages the identifier indicating the location of the radio base station 8 itself including this base station position managing unit 81. The user corresponding unit 82 stores the information for corresponding the identification of the user of the portable radio equipment 7 and the user of the notebook size PC 4.

When the user uses the notebook size PC 4 by connecting to the LAN circuit 2, the operation is as follows. First, the user connects the notebook size PC 4 to one of the information consents 3a, 3b, 3c, for example, 3a, and manipulates the portable radio equipment 7 to connect to the radio base station 8. As a result, the radio base station 8 detects that the portable radio equipment 7 is existing within its communication area, and broadcasts the identifier indicating its location to the LAN circuit 2 from the base station position managing unit 81 through the communication circuit 83. At the same time, the radio base station 8 identifies the user corresponding to the detected portable radio equipment 7 from the data stored in the user corresponding unit 82.

The output broadcasted from the base station position managing unit 81 of the radio base station 8 is received by the information consent, for example, the information consent 3a, coinciding with the identifier stored in the network position managing units 31a, 31b, 31c in the information consents 3a, 3b, 3c connected to the LAN circuit 2. As a result, the information consent 3a recognizes that the notebook size PC 4 is present nearby.

Then, the wireless communication unit 51 of the notebook size PC 4 reads out the identifier from the network position managing unit 31a of the information consent 3a by wireless

communication, and selects the corresponding destination out
of the several destinations registered preliminarily in the
resource information database 42. Then the resource setting
unit 41 of the notebook size PC 4 reads out a list of
5 resource information registered corresponding to the place
from the resource information database 42, and registers in
the OS.

Therefore, in the fourteenth embodiment, the position of
the portable radio equipment 7 held by the user of the
10 notebook size PC 4 is detected by the radio base station 8,
and the position information is noticed to the notebook size
PC 4 through the information consent 3a (or 3b, 3c) to which
the notebook size PC 4 is connected, and a list of resource
information is automatically registered in the OS of the
15 notebook size PC 4, so that the user has nothing to do at
all.

In the foregoing embodiments, as described above, the
portable notebook size PC is connected to the information
consent, but this is only an example, and, not limited to the
20 notebook size PC, it may be applied to a general computer
system, whether desk top type or tower type.

According to the invention, as specifically described
herein, when the computer is connected to the information
consent of the network circuit, the resource information
25 relating to the resource usable in the area through the

network circuit is set either semiautomatically or automatically, and the function of the network can be fully utilized, so that the convenience and productivity may be enhanced.

5 Besides, since the resource can be used through the network without inquiring to the administrator of the network, setting of resource information is easy, and the required time is saved.

10 When using the portable personal computer by connecting to a network circuit, the resource environment substantially equivalent to the environment to be used by the user of the portable personal computer can be selected, and therefore the hitherto disliked operation of frequent connection and disconnection of the portable personal computer with the
15 network is facilitated, and the utility is improved.

20 Moreover, according to the portable computer of the invention, when connected to the network, the resource information relating to the resource usable near the network is set semiautomatically or automatically, and the resources
25 can be utilized through the network without having to inquire to the administrator of the network. Hence, the resource environment substantially equivalent to the environment to be used by the user of the portable personal computer can be selected, and therefore the hitherto disliked operation of frequent connection and disconnection of the portable

personal computer with the network is facilitated, and the utility is improved.

As this invention may be embodied in several forms without departing from the spirit of essential
5 characteristics thereof, the present embodiments are therefore illustrative and not restrictive, since the scope of the invention is defined by the appended claims rather than by the description preceding them, and all changes that fall within metes and bounds of the claims, or equivalence of
10 such metes and bounds thereof are therefore intended to be embraced by the claims.

Claims

1. A computer network system in which plural connecting means capable of connecting and disconnecting a computer is provided in a network circuit to which a first computer has been connected, and a second computer is connected to one of said connecting means, wherein

said first computer comprises resource information managing means for managing information relating to resources usable through said network circuit, and resource information processing means for taking out the content of said resource information managing means in response to a request of information relating to usable resources from other computer, and transmitting to said network circuit,

said second computer comprises resource setting means for setting the resource according to the content of the resource information transmitted by said resource information processing means of said first computer, and

when said second computer is connected to said network circuit through any one of said plural connecting means, said resource setting means receives the content of the resource information transmitted by said resource information processing means of said first computer and sets the resource.

2. A computer network system in which plural connecting means capable of connecting and disconnecting a computer is provided in a network circuit to which a first computer has been connected, and a second computer is connected to one of said connecting means, wherein

said first computer comprises resource information managing means for managing information relating to resources usable through said network circuit, resource information processing means for taking out the content of said resource information managing means in response to a request of information relating to usable resources from other computer, and transmitting to said network circuit, and resource installation position managing means for managing the position at which the resource managed by said resource information managing means exists,

said second computer comprises position noticing means for noticing the position information indicating the position to said first computer when connected to one of said connecting means, resource selecting means for selecting an arbitrary resource out of plural resources, and resource setting means for setting the resource according to the content of the resource information selected by said resource selecting means, and

when said second computer is connected to said network circuit through any one of said plural connecting means,

said resource installation position managing means of said first computer reads out the resource information corresponding to the position information noticed by said position noticing means from said resource information managing means, and transmits to said second computer, and

said resource setting means of said second computer sets the resource selected by said resource selecting means in the resource information received from said first computer.

3. A computer network system in which plural connecting means capable of connecting and disconnecting a computer is provided in a network circuit to which a first computer has been connected, and a second computer is connected to one of said connecting means, wherein

said first computer comprises resource information managing means for managing information relating to resources usable through said network circuit, and resource information processing means for taking out the content of said resource information managing means in response to a request of information relating to usable resources from other computer, and transmitting to said network circuit,

said second computer comprises resource information holding means for holding the resource information relating to the resources that can be managed directly, and comparing means for comparing the content of said resource information

holding means and the content of said resource information managing means of said first computer, and detecting a replaceable resource, and

when said second computer is connected to said network circuit through any one of said plural connecting means as being disconnected from the resource that can be managed directly, said comparing means compares the content of said resource information managing means transmitted from said resource information processing means and the content of said resource information holding means, and said resource setting means sets a replaceable resource.

4. A computer network system in which plural connecting means capable of connecting and disconnecting a computer is provided in a network circuit to which a computer is connected to one of said connecting means, wherein

said computer comprises resource information managing means for managing plural sets of information relating to the resources usable through said network circuit corresponding to said connecting means, position selecting means for selecting one of the information relating to plural sets of resources managed by said resource information managing means, and resource setting means for setting the resource according to the information relating to the resource corresponding to the position selected by said position

selecting means, and

when said computer is connected to said network circuit through any one of said plural connecting means, said resource setting means obtains the resource information corresponding to the position selected by said position selecting means from said resource information managing means, and sets the resource.

5. A computer network system in which plural connecting means capable of connecting and disconnecting a computer is provided in a network circuit to which a first computer has been connected, and a second computer is connected to one of said connecting means, wherein

said first computer comprises resource information managing means for managing plural sets of information relating to resources usable through said network circuit corresponding to plural positions,

said second computer comprises resource information managing means for managing plural sets of information relating to the resources usable through said network circuit corresponding to said connecting means, position selecting means for selecting one of the information relating to plural sets of resources managed by said resource information managing means, resource setting means for setting the resource according to the information relating to the

resource corresponding to the position selected by said position selecting means, and comparing means for comparing the updated time of the content of the own resource information managing means and the updated time of the content of said resource information managing means of said first computer, and

when said second computer is connected to said network circuit through any one of said plural connecting means, said resource setting means obtains the content of said resource information managing means of said first computer, and registers in said resource information managing means in the case where the comparing result by said comparing means shows that the updated time of the content of the own resource information managing means is before the updated time of the content of said resource information managing means of said first computer.

6. A computer network system in which plural connecting means capable of connecting and disconnecting a computer is provided in a network circuit to which a computer is connected to one of said connecting means, wherein

said computer comprises resource information managing means for managing plural sets of information relating to the resources usable through said network circuit corresponding to said connecting means, position selecting means for

selecting one of the information relating to plural sets of resources managed by said resource information managing means, resource setting means for setting the resource according to the information relating to the resource corresponding to the position selected by said position selecting means, updated resource information transmitting means for transmitting updated resource information to all computers connected to said network circuit when content of said resource information managing means is updated, and resource information updating means for updating the content of said resource information managing means when receiving the updated resource information, and

when said computer is connected to said network circuit through any one of said plural connecting means, said resource information updating means updates the content of said resource information managing means in the case where said resource information updating means receives the updated resource information from said updated resource information transmitting means of other computer.

7. A computer network system in which plural connecting means capable of connecting and disconnecting a computer is provided in a network circuit to which plural first computers have been connected, and a second computer is connected to one of said connecting means, wherein

each of said first computers comprises resource information managing means for managing information relating to a resource installed at a specific position usable through said network circuit, and resource information processing means for taking out the content of said resource information processing means in response to a request of information relating to usable resources from other computer, and transmitting to said network circuit,

said second computer comprises position information managing means for managing information relating to the positions of the resources managed by each of said plural first computers, position selecting means for selecting one of the information relating to the positions managed by said position information managing means, resource information obtaining means for obtaining the information relating to the resource corresponding to the position selected by said position selecting means from said first computer managing it, and resource setting means for setting the resource according to the content of the resource information obtained by said resource information obtaining means, and

when said second computer is connected to said network circuit through any one of said plural connecting means, said resource information obtaining means obtains the resource information corresponding to the position selected by said position selecting means from the information managed by said

position information managing means, and said resource setting means sets the resource.

8. A computer network system in which plural connecting means capable of connecting and disconnecting a computer is provided in a network circuit to which a computer is connected to one of said connecting means, wherein

said computer comprises resource information obtaining means, when other computer is connected to said connecting means of said network circuit, for obtaining the information relating to the usable resources through said network circuit from said other computer, and resource setting means for setting the resource according to the information relating to the resource obtained by said resource information obtaining means, and

when said computer is connected to said network circuit through any one of said plural connecting means, said resource setting means sets the resource according to the resource information obtained by said resource information obtaining means from other computer connected to said connecting means of said network circuit.

9. A computer network system in which plural connecting means capable of connecting and disconnecting a computer is provided in a network circuit to which a computer is

connected to one of said connecting means, wherein

each of said plural connecting means has position managing means for storing the position information indicating each installation position,

said computer comprises resource information managing means for managing plural sets of information relating to the resources usable through said network circuit corresponding to said connecting means, position selecting means for selecting one of the information relating to plural sets of resources managed by said resource information managing means corresponding to the position information stored in said position managing means of said connecting means, and resource setting means for setting the resource according to the information relating to the resource corresponding to the position selected by said position selecting means, and

when said computer is connected to said network circuit through any one of said plural connecting means, said resource setting means sets the resource according to the resource information registered in said resource information managing means corresponding to the position information stored in said position information managing means of the connecting means to which said computer is connected.

10. A computer network system in which plural connecting means capable of connecting and disconnecting a

computer is provided in a network circuit to which a computer is connected to one of said connecting means, wherein

said connecting means comprises resource information managing means for managing the information relating to the resources usable through said network circuit near each installation position, resource information noticing means for noticing the content of said resource information managing means when the computer system is connected, and updated resource information registering means for updating and registering the content of said resource information managing means by receiving updated resource information from said computer,

said computer comprises resource information receiving means for receiving the resource information managed by said resource information managing means noticed by said resource information noticing means, resource setting means for setting the resource according to the resource information received by said resource information receiving means, and updated resource information noticing means for noticing the updated resource information to said connecting means in order to update the content of said resource information managing means of said connecting means, and

when said computer is connected to said network circuit through any one of said plural connecting means, said resource information receiving means receives the resource

information managed by said resource information managing means noticed from said resource information noticing means, and said resource setting means sets the resource according to the resource information received by said resource information receiving means.

11. The computer network system as set forth in claim 10, wherein

said connecting means further comprises updated resource information transmitting means for sending out updated resource information to said network circuit when the content of said resource information managing means is updated, and updated resource information receiving means for updating the content of said resource information managing means when receiving the updated resource information from said network circuit,

when updated resource information is noticed from said updated resource information noticing means to said connecting means, said updated resource information transmitting means sends out the updated resource information to said network circuit, and

said updated resource information receiving means, when receiving the updated resource information from said network circuit, updates the content of said resource information managing means according to the received updated resource

information.

12. A computer network system in which at least one connecting means capable of connecting and disconnecting a computer is provided in plural network circuits to each of which resource has been connected, and a computer is connected to one of said connecting means, wherein

said resource has resource information replying means for replying the own resource information when receiving a predetermined message,

said computer comprises resource request message transmitting means for transmitting a message propagating within one network circuit, resource information receiving means for receiving the resource information, and resource setting means for setting the resource according to the content of the resource information received by said resource information receiving means, and

when said computer is connected to said network circuit through any one of said plural connecting means, a predetermined message is transmitted from said resource request message transmitting means, the resource information of said resource replied by said resource information replying means for said predetermined message is received by said resource information receiving means, and the resource is set by said resource setting means.

13. A computer network system in which at least one connecting means capable of connecting and disconnecting a computer is provided in plural network circuits to each of which a first computer has been connected, and a second computer is connected to one of said connecting means, wherein

each of said first computers comprises resource information managing means for managing information relating to resources usable through only one network circuit to which each is connected, and resource information replying means for replying the resource information which is the content of the own resource information managing means when receiving the predetermined message,

said computer comprises resource request message transmitting means for transmitting a message propagating within one network circuit, resource information receiving means for receiving the resource information, and resource setting means for setting the resource according to the content of the resource information received by said resource information receiving means, and

when said computer is connected to said network circuit through any one of said plural connecting means, a predetermined message is transmitted from said resource request message transmitting means, the resource information replied by the resource information replying means of said

resource of said first computer to this predetermined message is received by said resource information receiving means, and the resource is set by said resource setting means.

14. A computer network system in which plural connecting means capable of connecting and disconnecting a computer is provided in a network circuit to which a computer is connected to one of said connecting means, wherein

each of said plural connecting means comprises position managing means for storing the position information showing each installation position, and radio communication means,

said computer comprises resource information managing means for managing plural sets of information relating to resources usable through said network circuit corresponding to said connecting means, radio communication means for connecting with said radio communication means of said connecting means by radio communication, and selecting one of the information relating to plural sets of resources managed by said resource information managing means corresponding to the position information stored in said position managing means of said connecting means, and resource setting means for setting the resource according to the information relating to the resource corresponding to the position selected by said position selecting means, and

when the radio communication means of said computer is

connected to said radio communication means of any one of said plural connecting means through radio communication, said resource setting means sets the resource according to the resource information registered in said resource information managing means corresponding to the position information stored in said position information managing means of the connecting means to which said radio communication means of said computer is connected.

15. A computer network system in which plural connecting means capable of connecting and disconnecting a computer is provided in a network circuit to which a radio base station capable of communicating with a mobile radio communication device is connected, and a computer is connected to one of said connecting means, wherein

said radio base station comprises position information managing means for transmitting the position information for identifying itself to said network circuit when communicating with said mobile radio communication device, and corresponding means for managing by corresponding between said mobile radio communication device and said computer,

said computer comprises resource information managing means for managing plural sets of information relating to the resources usable through said network circuit corresponding to said connecting means, position selecting means for

selecting one of the information relating to plural sets of resources managed by said resource information managing means according to the position information transmitted from said position managing means of said radio base station, and resource setting means for setting the resource according to the information relating to the resource corresponding to the position selected by said position selecting means, and

when said computer is connected to said network circuit through any one of said plural connecting means, said resource setting means sets the resource by obtaining the resource information corresponding to the position selected by said position selecting means from said resource information managing means.

16. A portable computer used by being connected to a computer network to which a server computer is connected, comprising:

a resource information inquiring unit for inquiring the information relating to the resources usable in said network, to said server computer of the network to which it is connected itself,

a resource information obtaining unit for obtaining resource information noticed from said server computer in response to the inquiry from said resource information inquiring unit, and

a resource setting unit for setting at least one resource required in said network according to the information relating to the resource obtained by said resource information obtaining unit, wherein

said resource setting unit, when connected to a certain network, sets the resource according to the resource information intrinsic to the network obtained by said resource information obtaining unit.

ABSTRACT OF THE DISCLOSURE

5 A computer network system in which an IP address is assigned not only automatically at a destination of a notebook size PC (portable personal computer) 4, but also information relating to shared resources on the network is obtained at the site from a server 1 through a LAN circuit 2, so that the notebook size PC 4 can be used by connecting to the network even in the absence of the administrator. Henceforth, when the user moves within the same building as
10 his own office, it seems that the occasion of using the portable personal computer by connecting to the network such as the Internet and intranet increases. In such a case, connection and disconnection of the network may be repeated frequently, and setting for such operation is facilitated.

COMBINED DECLARATION/POWER OF ATTORNEY FOR UTILITY/DESIGN PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name. I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

COMPUTER NETWORK SYSTEM AND PORTABLE COMPUTER

the specification of which (check one) ☒ is attached hereto ☐ was filed on _____
as U.S. Application Serial No. _____ and was amended on _____ (if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose to the Office all information known to me to be material to patentability as defined in §1.56. I hereby claim foreign priority benefit(s) under 35 U.S.C. §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application(s) for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s) (Patent Application)

Priority Claimed

<u>9-224132</u>	<u>Japan</u>	<u>20/8/1997</u>	<input checked="" type="checkbox"/> [X]	<input type="checkbox"/> []
(Number)	(Country)	Day/Month/Year Filed	Yes	No
<u> </u>	<u> </u>	<u> </u>	<input type="checkbox"/> []	<input type="checkbox"/> []
(Number)	(Country)	Day/Month/Year Filed	Yes	No

I hereby claim the benefit under 35 U.S.C. §120 of any U.S. application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application(s) in the manner provided by the first paragraph of 35 U.S.C. §112, and I acknowledge the duty to disclose to the Office all information known to me to be material to patentability as defined in §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

<u> </u>	<u> </u>	<u> </u>
(Application Serial No.)	(Filing Date)	(Status: patented, pending, abandoned)
<u> </u>	<u> </u>	<u> </u>
(Application Serial No.)	(Filing Date)	(Status: patented, pending, abandoned)

POWER OF ATTORNEY:

As a named inventor, I hereby appoint the following attorneys and agent: James D. Halsey, Jr., 22,729; Harry John Staas, 22,010; David M. Pitcher, 25,908; John C. Garvey, 28,607; J. Randall Beckers, 30,358; James H. Marsh, Jr., 24,533; William F. Herbert, 31,024; Richard A. Gollhofer, 31,106; Carla M. Krivak, 30,956; Mark J. Henry, 36,162; Paul F. Daebeler, 35,852; Gene M. Garner II, 34,172; Ilene D. Altman, 36,371; Michael D. Stein, 37,240; Paul I. Kravetz, 35,230; Gerald P. Joyce, III, 37,648; Debra K. Stephens, 38,211; Todd E. Marlette, 35,269; and William M. Schertler, 35,348 (agent) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. Send correspondence to: STAAS & HALSEY, 700 Eleventh Street, N.W., Suite 500, Washington, D.C., 20001, and direct telephone calls to: (202) 434-1500

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. §1001, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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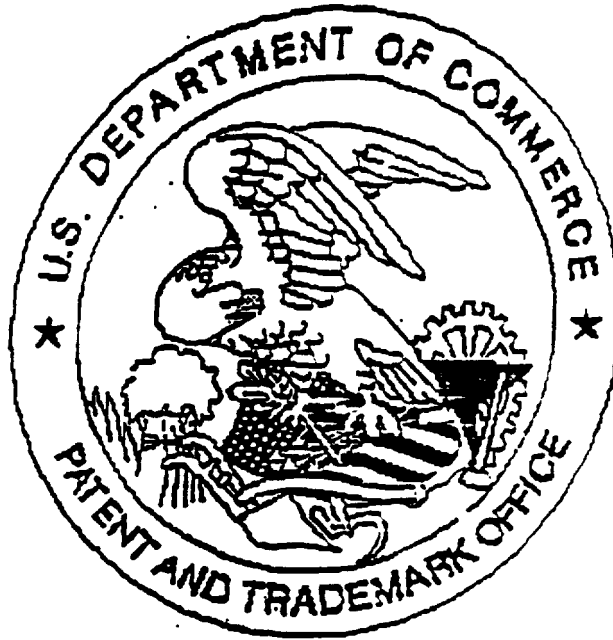
Second Inventor's Signature _____ Date _____

Residence _____

Citizenship _____

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